



“Machine learning-based methods for estimating time to failure with application to APU prognostics”

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Research Keywords: Artificial Intelligence, Machine learning, Reasoning Technologies, Intelligent Systems, Prognostics and Health Management, Integrated Diagnostic Systems

Abstract:

The need for higher equipment availability and lower maintenance cost is driving the development and integration of prognostic and health management (PHM) systems. Taking advantage of advances in sensor technologies, PHM systems enable a predictive maintenance strategy through continuously monitoring the health of complex systems. The core of PHM technology is prognostics which is able to predict the likelihood of a failure and estimate time to failure (TTF) using the built-in predictive models. However, TTF estimation is still remaining a challenge. In this talk, the state of the art of TTF estimation will be first reviewed. After introduction of traditional methods of TTF estimation, I will present the developed methods —machine learning-based approaches— for estimating TTF, including classification, regression, on-demand regression, and so on. In particular, the on-demand regression method will be elaborated along with the results obtained from a real-world application, Auxiliary Power Unit (APU) prognostic, which uses the developed technologies to estimate the TTF.

About Speaker

- 1983 *BA in Electronic Engineering, Harbin Engineering University*
- 1986 *MS in Computer Engineering, Shanghai Jiao Tong University*
- 1995 *Ph.D. in Computer Engineering, Hiroshima University*

1995 – 1998 *Senior Engineer, Fujitsu Inc., Kawasaki Communication Research Lab*
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